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ABSTRACT

Designed to provide clues to research questions on sex differences nonverbal in communication, this paper contains the results of dyadic conversations processed on video tape. Twelve undergraduate and graduate student volunteers were solicited along with employed nonstudents between the ages of 19 and 30. Results indicated that males displayed more nonverbal gestures than did females, regardless of the sex of the conversation partner, and that males displayed slightly more gestures with males than with females. The findings of this study indicated that nonverbal communication serves as an illustrator of and a supplement to the verbal element, but also acts as the functor for gender display. The data from the study are presented in both narrative and table format. (RB)

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AN INVESTIGATION OF SEX DIFFERENCES IN REGARD TO NONVERBAL BODY GESTURES

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Darwin opened up the whole world of nonverbal communication with his theories on gestural meanings. Wundt, in the late 1800's, developed a more elaborate presentation of those theories. Since that time, research has been stimulated and carried out in the field but it had a late start and was far behind the research in verbal communication. Nancy Henley of Lowell Technological Institute in Massachusetts pointed out that

> Our culture emphasizes verbal over nonverbal communication. English is taught in our schools through all grades, with the aims of both better understanding and better expression. Nonverbal communication isn't taught; we never learn to analyze what certain postures, gestures, and looks mean, or how to express ourselves better nonverbally. Yet, with all our ignorance about nonverbal communication, the evidence is that the nonverbal message greatly overpowers the verbal one.[2]

It is estimated that the nonverbal carries 4.3 times the weight of the verbal message.[3] In the face of that evidence, it seems highly pertinent that greater understanding and execution of nonverbal skills is imperative for effective communication.

The second purpose for this study arose from the fact that very few studies of nonverbal have looked directly at sex differences. Birdwhistell said, "until recently, the implications of much of the data on nonverbal gender display have been obscured by the governing assumption that the behavior, while intricate and obviously patterned, was essentially a mechanical and instinctual response based on genetics."[4] Scientists assumed sexual differences to be natural occurrences and rarely bothered to treat sex as an independent variable. It has been suggested that much of our nonverbal behavior, far from being "natural," has been independently learned and altered to accentuate and display sex differences.[5]

Irma Galejs, noted authority on child development, conducted a study of nonverbal behavior among preschool children involving same-sex

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and opposite-sex pairs. Opposite-sex pairs displayed significantly more leading, demonstrating, assisting, and sharing behavior while same-sex pairs showed more giggly, happy, grabby, and unfriendly behavior. Girls displayed more pronounced behaviors than boys. Girls shared more and were more tolerant when paired with boys than when paired with other girls. She concluded:

> Society's expectations of sex differences in social behavior are evident even for the very young child. Different behavior is expected from boys and from girls. Age and sex appear to be the main differentiating factors in social interactions among children.[6]

The controversy is yet unsolved whether the sex differences are inherent or are learned but that does not lessen the importance of the findings that possibly the most significant variable in nonverbal differences is the sex of the sender and/or receiver. Duncan in his comprehensive review of nonverbal research points to sex as perhaps the most powerful single variable in visual interaction studies.[7]

Most of the existing data investigating nonverbal sex differences occur in the area of facial gestures and eye contact. Exline found that women look more at the partner and also engage in a high amount of mutual looking.[8] Michael Argyle found that female pairs associated liking with looking while listening. He also indicated that males under restricted visual conditions attempted to exert dominance through greater verbal participation. Females, however, decreased their verbal participation and expressed more discomfort than men when unable to see their interactants.[9]

Holstein found that when seeking approval, males used more positive head nods, while females used more eye contact.[10] Jourard has completed a number of studies in the area of body accessibility.

He found generally that women are touched more by both men and other women.[11]

The area of nonverbal body gestures lacks the wealth of research that the previously mentioned areas hold. Goffman found that men generally are more immodest in their sitting positions.[12] Mehrabian and Friar measured seating postures as a sign of liking or disliking conversation partners. They found that eye contact increases with a more positive attitude toward the addressee and also increases if the addressee is considered of higher status.[13] Their findings indicated that eye contact in measuring attitudes was a more reliable variable than body gestures.

Next to the face, the hands are the most visible and expressive part of the body and play a very different role from facial expression. According to Argyle, their principal function is as illustrators and though unintentional, they often show emotional states.[14] Ekman and Friesen have done a good deal of research on hand gestures. One of their conclusions state that there is a lot of hand-face contact amoung disturbed patients in a hospital setting. They also report that hand and foot movements sometimes signal messages that are quite inconsistent with utterances.[15] Gitin conducted a study of hand gestures creating scales such as active-passive, pleasant-unpleasant, and weak-strong into which subjects classified those gestures.[16] It should be noted though that the current research in regard to hand gestures does not isolate respondent sex as a variable.

Foot movements are less visible and less expressive than head or hand movements but still no common categories for notation have been

found yet. The current literature suggests to this writer that the area of sex differences in regard to body gestures calls for more research. Some questions raised then include: (1) Are there any body gestures exclusively reserved for one or the other sex? (2) Are there gestures used exclusively among same-sex pairs but not for opposite-sex interaction? (3) Do males or females, on the whole, exhibit more nonverbal gestures in dyads? (4) Does previous association alter the nonverbal pattern significantly? (5) Does the volume and diversity of gestures change with the sex of the conversation partner?

This author, through the process of video tape, arranged to document sample dyad conversations looking strictly for data to provide clues to the posed research questions.

METHODOLOGY

Undergraduate and graduate student volunteers were solicited as well as employed non-students. Twelve volunteered, 6 males and 6 females. They were all between the ages of 19 and 30. Some had previous association with each other though none described that association as long-term or intimate. They arrived during mid-morning at the television studio on campus. Two at a time, they were asked to take a seat in the studio and have a two-minute conversation on the topic of their choice. Behind the control room window, a video camera and ½" video tape recorder were recording their body gestures. The subjects were aware they were being videotaped but had no information as to the reason other than the fact that it was a graduate experiment. The camera was in a dark room behind glass and could be considered unobtrusive.

The experimenter gave them a verbal signal to begin and to end. Each subject had two conversations; one with a partner of the same sex, one with a partner of the opposite sex.

MEASUREMENT

It became clear that the measurement of nonverbal gestures is difficult. E.T. Hall was a pioneer researcher in the area of proxemic behavior. He was the first to develop a proxemic notation system.[17] I borrowed a portion of that system regarding the "sociofugal-sociopetal axis," more easily defined as shoulder angles.

position 1 position 2

position 3 position 4

Kendon developed an abbreviated system of Birdwhistell's lengthy kinesic notation system which also aided my measurements, particularly in regard to trunk and shoulder positions.[18]

position 1 leaning forward

position 2 sitting erect

position 3 relaxed; leaning backwards

position 4 very relaxed - almost prostrate

---

position 1 shoulders hunched forward

position 2 shoulders hunched backward

For the categories of arm, leg, hand, and foot movements, there seems to be no universal notation system. It therefore became necessary to create my own. Upon reviewing the data, I created categories for each

of the gestures displayed in this particular experiment.

My methods for measurement entailed the chronological listing of each full gesture. I defined gesture with the beginning of a movement to its finish. The plus signs occurring after a number indicate continuous movement, rather than solidly defined movements. The video tape was viewed as many times as necessary to insure accurate readings of each gesture which included trunk and shoulder positions, arm and hand movements, leg and foot movements.

LIMITATIONS OF THE STUDY

Video tape has opened the door to a new world of research. It is plausible that I could analyze the one video tape I recorded for months, perhaps years. But it is not my intent to measure everything possible, at least for this report. I will be measuring the number of gestures, the different kinds of gestures, and sex differences in the display of those gestures.

Possible future measurements could include the duration of the gestures, the content of the conversation, when gestures occur in reference to speaking or listening, and attitudes or amount of liking associated with those gestures. There is a multitude of nonverbal information which could be scrutinized, measured, and reported from this one experiment alone.

DATA

The following are gesture measurements of subjects in conversation with same-sex and opposite-sex partners in a dyad. As an aid to understanding the notation system more clearly, an example will be provided.

EXAMPLE

in conversation with Male subject #1

SUBJECT:	FEMALE #1 w/M 1	FEMALE #1 w/F 2	FEMALE #2		FEMALE #3		FEMALE #4	
HAND MOVEMENTS:								
fingers clasped	1-3	3						
one hand rotates	5	2-4						
fix hair	2	5+						
hands in lap	4-6	1						
FOOT MOVEMENTS:								
legs crossed at knees	1							
slight foot movement	5							
tapping foot	2							
knee movement	3-4							

Gestures are designated chronologically. In reference to Female #1, while with Male #1, her first gesture was to clasp fingers, the second to fix her hair, the third to clasp her fingers again, and so on. Female #1 in conversation with Female #2, first held her hands in her lap, secondly, rotated one hand, thirdly, clasped fingers, and so on. The plus sign after a number indicates continuous movement, rather than solidly defined movement.

The foot and leg movements were obviously occurring simultaneously and are also designated chronologically apart from hand gestures.

RESULTS

Number of Gestures

On the whole, males displayed more nonverbal gestures than did females, regardless of the sex of the conversation partner. They displayed slightly more gestures with males than with females.

	Males	Females	
Males	136	130	= 266 (number of gestures)
Females	119	90	= 209

TABLE 5

When chi square was applied to the total number of male gestures in comparison with the total number of female gestures, the figure attained was 3.43. The figure required for an alpha level (.05) of significance is 3.84, so it can be seen that statistically, the conclusion that males exhibited significantly more nonverbal gestures is nearly firm.

The most outstanding result, however, was revealed when a test was applied for the difference between two population proportions for dependent samples. When comparing the number of gestures that females, as a group, displayed with males as opposed to females, it was found that they displayed more gestures with males than with their same-sex partners to the .02 level of significance.

Kinds of Gestures

It became necessary to list the total variety of gestures by sex. Table 6 was devised for illustration of that purpose. As indicated on the following page, for example, females clasped fingers 13 times (with both sexes) while males performed that gesture 12 times (with both sexes) and so on.

TABLE 6 - No. and Kind of Gestures by Sex

SUBJECT:	FEMALES	MALES
trunk position	(1) (4) (6) (2)	(1) (5) (8) (1)
shoulder position	(5) (6)	(3) (0)
HANDS AND FINGERS:		
fingers clasped or hands crossed	13	12
both hands open on chair arms	17	6
one hand open on chair arm	2	5
hand on leg or foot	3	5
hand or hands in lap	3	0
holding object	0	13
one hand rotates	25+	21+
both hands rotate	9	9
both palms open	4	5
one palm open	6	7
lift one or both hands, palm down	6	16
use hands to physically move body	1	6
stretch hands, crack knuckles	0	1
slight hand movement	0	0
finger movement only	20++	21
scratch nose	2	1
fix hair or ornamentation	13	5
closed fist	1	5
stroke chin	3	9
one or both hands sweep, palms up	5	7
hand to face	7	4
tapping hands	5	0
tapping fingers	1	1
pointing	0	10
clean fingernails	1	0
LEGS AND FEET:		
both feet on floor, legs together	0	0
both feet on floor, legs apart	0	5
legs stretched out, knees close	0	0
legs stretched out, ankles crossed	0	1
legs crossed at knees, feet close	8	0
legs crossed at knees, feet apart	7	0
legs crossed, ankle over knee	2	8
ankles crossed, knees apart	5	1
ankles crossed, knees together	0	0
slight foot movement	8	22++
much foot movement	4	12+
knee movement	0	0
both legs in movement	3	13
tapping foot	7	32+
one knee straight, one knee bent	0	2
foot of crossed leg in movement	18++++	0
physically push chair back w/legs	0	1

A test was applied for the difference between two population proportions for independent samples and the levels of significance are indicated in the left margin. The following observations were made in reference to Table 6:

	l.o.s.
1) Males sit with their ankle of one leg crossing the knee of the other significantly more often than do females.	.003
2) Males use their arms to lift or move their body position physically significantly more than females do.	.005
3) Males use the closed fist significantly more than females.	.01
4) Females arrange or play with their hair or ornamentation a good deal more than men.	.06
5) Males stroke their chin more than do females.	.06
6) Males use sweeping gestures more than do females.	.10
7) Females tend to leave both hands down on chair arms more than males do.	.10
8) Males tend to exhibit a greater amount of leg and foot moevment altogether than do females.	.40

Certain gestures surfaced which were performed exclusively by one sex or the other. The asterisk indicates a much more widely performed gesture.

Strictly Female

1. hand or hands in lap
2. tapping hands
* 3. legs crossed at knees
4. ankles crossed, knees slightly apart

Strictly Male

1. stretching hands and cracking knuckles
* 2. pointing
3. both feet on floor w/ legs apart
4. legs stretched out, ankles crossed
* 5. knees spread apart while sitting

Sex Differences In Gesture Display

It seemed easiest to compare these differences by compiling a table, noting the most frequent gesture occurrences of each interactant.

TABLE 7

* indicates partners were previously acquainted

Subject	with same sex	with opposite sex
Female #1	trunk position relaxed exhibited more diversified gestures exhibited female only gestures more exposure with leg movement	fixed hair more more foot movement more overall gestures
Female #2	more relaxed - less foot and hand tapping	more overall gestures shoulder position more direct more diversified gestures more foot movement fixed hair more exhibited more nervous movements
Female #3	shoulders leaned forward	*
Female #4	sat erect *	more diversified gestures more overall gestures more nervous tapping
Female #5	more foot movement - * less arm movement	significantly more * gestures more nervous movement

Subject	with same sex	with opposite sex
Female #6	exhibited female only gestures * hands in lap and legs crossed	fixed hair - admired fingernails * lots of finger tapping exhibited predominantly male = closed fist crossed ankle over knee
Male #1	sat erect changed shoulder position to back opened legs	more gestures and more diversification more nervous movement crossed legs
Male #2	more gestures - more diversified exhibited male only trait more open gestures	more nervous movement more foot movement
Male #3	more gestures * exhibited male only traits legs open	changed trunk position many times * legs crossed
Male #4	more relaxed trunk * more foot movement exhibited male only trait more nervous foot movement	sat erect * more gestures and more diversified pushed chair away to create greater distance
Male #5	more foot movement more nervous tapping	more trunk movement *
Male #6	more overall gestures	more foot movement *

The following observations were made in regard to the previous table:

1) Both males and females seem to be more relaxed with the same sex rather than with the opposite sex. They exhibit more nervous gestures with the opposite sex. Exceptions occurred when partners knew each other. In two cases, males were more relaxed with females they knew previously and more nervous with male partners who were strangers.

2) Strangely enough, the traits pointed out previously as exclusively male and exclusively female were reserved for conversations with the same sex partner. Pointing occurred only between males and hands in the lap occurred only between females.

3) There seemed to be certain traits directly related to gender display by Birdwhistell's definition. For example, females handled their hair and clothing ornamentation a great deal more in front of men rather than women. Men, on the other hand, were not modest and significantly more open with their leg positions in front of other males. Precisely, their feet were on the floor with legs apart while conversing with males. With females, they nearly always crossed one ankle over the other knee closing exposure.

4) Both males and females tend to display a greater number and greater diversity of gestures with the opposite sex. There seems to be more foot movement with the same sex, however.

DISCUSSION

The findings of this study strongly indicate the nonverbal communication fills a dual role in conversation. Not only does it serve as an illustrator and supplement to the verbal component as Argyle states, but also acts as the functor for gender display as Birdwhistell has consistently concluded. The exclusivity of certain gestures to one sex or the other and the exclusive display of them suggests a more than chance conclusion that gender signals are occurring. Not only that, the exclusivity of certain traits for conversations with the same-sex partner only might lead one to conclude that separate nonverbal languages are occurring and restrictive gestural

taboos are in force voluntarily.

There was a predominant display of dominant gestures by the males; i.e., closed fist, pointing, sweeping gestures. Argyle contends that a greater use of body gestures makes up for verbal incompetency while Henley feels that open and dominant gestures are an exposé of power. Nonetheless, this study reports a greater volume of gestures on the part of males. Whether it is an indication of their verbal degeneration or their display of social dominance or both is left to the individual analyst. In keeping with Henley's suggestions that such gestures provide power and status in a conversation, it would be assumed that the males involved in this experiment did wield the power. That could be measured by conversation content and attitude self-report more reliably but that data is not available for this particular report.

Nonverbal behavior patterns were a strong indicator of relaxation or the lack of it. It was an interesting discovery to find opposite-sex pairs generally more uneasy with one another. It was more revealing to find that pattern reversed, irregardless of sex, when the partners had a previous association prior to the experiment. This leads one to conclude that previous association is a stronger variable in nonverbal behavior than sex of the respondents.

This study leaves little doubt that sex is a strong variable in nonverbal differences, though. The differences are many. It is only fair to point out, however, that numerous contaminating variables exist. Whether they are numerous enough to dispel the suggestion that these nonverbal differences are based on sex alone is left to further analysis. Nonetheless, it seems that sex as an independent variable is worthy of pursuing in greater detail in the field of nonverbal communication. As

in any research, only when we understand which things occur and how often, can we move to understand why and decide, only then, on the importance of integrating those findings into educational skills for more effective communication.

SUMMARY

Some interesting findings surfaced from this descriptive account of nonverbal gestural differences by sex. Primarily, five questions for research were posed. In regard to the first question, it does seem clear that, at least in this case, there were particular gestures reserved for males,i.e., pointing, immodest leg positions, and others; and also gestures used only by females, i.e., hands in the lap and legs crossed at the knees. It was additionally interesting to find that those exclusive gestures were performed only with the same-sex partner.

The males in this sample exhibited more nonverbal gesturing than the females, however, both sexes generated more nonverbal activity with opposite-sex partners. It also appears that previous association is correlated with the amount and kind of nonverbal gesturing, enough to transcend the sexual difference.

This kind of study merely reflects ongoing patterns of nonverbal behavior but more importantly begins to make us aware of how we use our bodies, whether consciously or unconsciously, to send information about ourselves. If indeed, the nonverbal component of our communicating efforts is at least 4 times more powerful than our verbal message, it only seems plausible to suggest that the power of knowing how we're performing provides us a new option; that of changing or im-

proving our use of nonverbal should we wish to do so. That, by far, is the greatest justification for this academic exploration.

[1] Paulette Peterson has received numerous awards for her professional advancement in the field of public broadcasting, both as a television producer and a writer, and is simultaneously employed as the Chief Instructional Television Producer at KAET-TV, Phoenix.

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